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Taleporia henderickxi sp. n., a new psychid species of the subfamily Taleporiinae from Crete (Lepidoptera, Psychidae)

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Abstract. *Taleporia henderickxi* **sp. n.** is described from the south-western part of Crete (Greece) and compared with its likely close relatives *Taleporia defoliella* Constant, 1896 and *Taleporia autumnella* (Rebel, 1919). The new species is well characterized by its dark brownish grey coloured forewings, the less elongated wing shape, the fringe scales of the forewings and by the structures of the male genitalia.

Zusammenfassung. *Taleporia henderickxi* **sp. n.** wird aus dem süd-westlichen Teil von Kreta (Griechenland) beschrieben und mit den vermutlich nächstverwandten *Taleporia defoliella* Constant, 1896, und *Taleporia autumnella* (Rebel, 1919) verglichen. Die neue Art ist gekennzeichnet durch die dunkel braun-graue Farbe der Vorderflügel, ihre weniger gestreckte Flügelform, die besondere Form der Fransenschuppen der Vorderflügel sowie die Struktur der männlichen Genitalarmatur.

Samenvatting. *Taleporia henderickxi* **sp. n.** wordt beschreven van het zuidwestelijke deel van Kreta (Griekenland) en vergeleken met de vermoedelijk meest verwante soorten *Taleporia defoliella* Constant, 1896 en *Taleporia autumnella* (Rebel, 1919). De nieuwe soort wordt gekenmerkt door de donkerbruin-grijze kleur van de voorvleugels, hun minder langwerpige vleugelvorm, de bijzondere vorm van de franjeschubben van de voorvleugels en de structuur van de mannelijke genitaliën.

Introduction

The actual species inventory of the psychid genus *Taleporia* Hübner, 1825 of Europe seems well established as no new species have been found for nearly a hundred years. Worldwide the genus includes 24 species (Sobczyk 2011). The last species was described by De Freina and Witt (1984) as *Taleporia pseudoimprovisella* from two specimens collected in 1860 by Mann from Asiatic Turkey.

During expeditions to Greece and Spain and the Canary Islands over the past 20 years, Hans Henderickx (Mol, Belgium) discovered several new psychid species along with other arthropods. He described them as *Pseudobankesia hauseriella* Henderickx, 1998, *Pseudobankesia leleupiella* Henderickx, 1996, *Luffia gomerensis* Henderickx, 1996, and *Pseudobankesia aphroditae* Weidlich & Henderickx, 2002. In the autumn of 2000 and 2002 he also visited Crete and collected a few cases with larvae of a small *Taleporia* species from which he reared three males and one female.

Comparing this material with the likely closely related taxa, as well as subsequent analysis of the adult morphology including the male genitalia structures, supported the recognition of a new species, which is described here as *Taleporia henderickxi* sp. n.

Material and methods

This new species was found with the aid of an adapted hand vacuum cleaner, used to investigate invertebrates under bark and rocks in the estuary of the River Megalopotamos in South Crete. The primary objective of vacuuming was for the capture of pseudoscorpions, but the small *Taleporia* species was present in the same habitat, on the ground, under rocks and bark near ground level.

Figures 1a, b, d and Figure 4 were made with a Canon 5D mark III and a MP-E 65 macro objective, with soft flash illumination. Figure 1c was made from a slide mounted male genitalia preparation in Pertex with a Leitz microscope and a 10x Leitz objective on the same camera. The phallus in this figure was coloured red with Adobe Photoshop afterwards. Figure 2 was made with a Pentax digital camera by using an Olympus stereo microscope. Figures 3a–f were made with the FEI Quanta 200 electron microscope at the Royal Belgian Institute of Natural Sciences, Brussels. Special attention was given to non-destructive examination with an Environmental Scanning Electron Microscope (ESEM) with scanning performed in low pressure–low temperature water vapour, for the option of collecting electron micrographs of specimens that are "wet," uncoated, or both by allowing for a gaseous environment in the specimen chamber.

Results

Taleporia henderickxi Arnscheid, sp. n.

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Material. Holotype ♂: Kreta (GR), Preveli, near Preveli beach 0 m, case 10.x.2000, male exit on 13.xii.2000, leg. Henderickx, accessory label "TALPRE ♂3" (Staatliches Museum für Naturkunde Karlsruhe (SMNK), Germany).

Paratypes: 1 ♂ Zuid-West Kreta, larva 28.iv.2000 (Estuary Preveli tussen schors Eucalyptus), imago 28.ix.2000, accessory label "TALPRE ♂1"; 1 ♂ Kreta, Limni Preveli, ex l. 24.x.2002, leg. Hans Henderickx, cult. Hättenschwiler, accessory label "TALPRE ♂2"; 1 ♀ Kreta (zuid), Preveli (estuary), N35°09.295, E24°28.430, case 28.iv.2000, imago 18.xi.2000, leg. Henderickx (all in the private collection of the author).

Etymology. It gives me great honour to dedicate this beautiful new species to Hans Henderickx. He discovered the new species and we are grateful for his contributions to the knowledge of the invertebrate fauna of Crete.

Diagnosis. *Taleporia henderickxi* is among the smallest *Taleporia* species (wingspan 9 and 10 mm). Looking closely at the genus the new species resembles *T. defoliella* from southern France but it differs by a couple of morphological features. The forewings of *Taleporia henderickxi* are broader and less elongated. Forewing index (forewing length / forewing width, after Sobczyk 2002) 2.45 and 2.63, average 2.54 (*T. defoliella* 2.69–2.72, average 2.71). The brownish spot at the inner margin is more prominent. The scales (of the distal third) of the forewings of the new species are mostly short and uniformly serrated distally with three equal dentations. The scales of *T. defoliella* are more or less triangular with mostly three hardly visible dentations with one longer dentation medially. The fringe scales

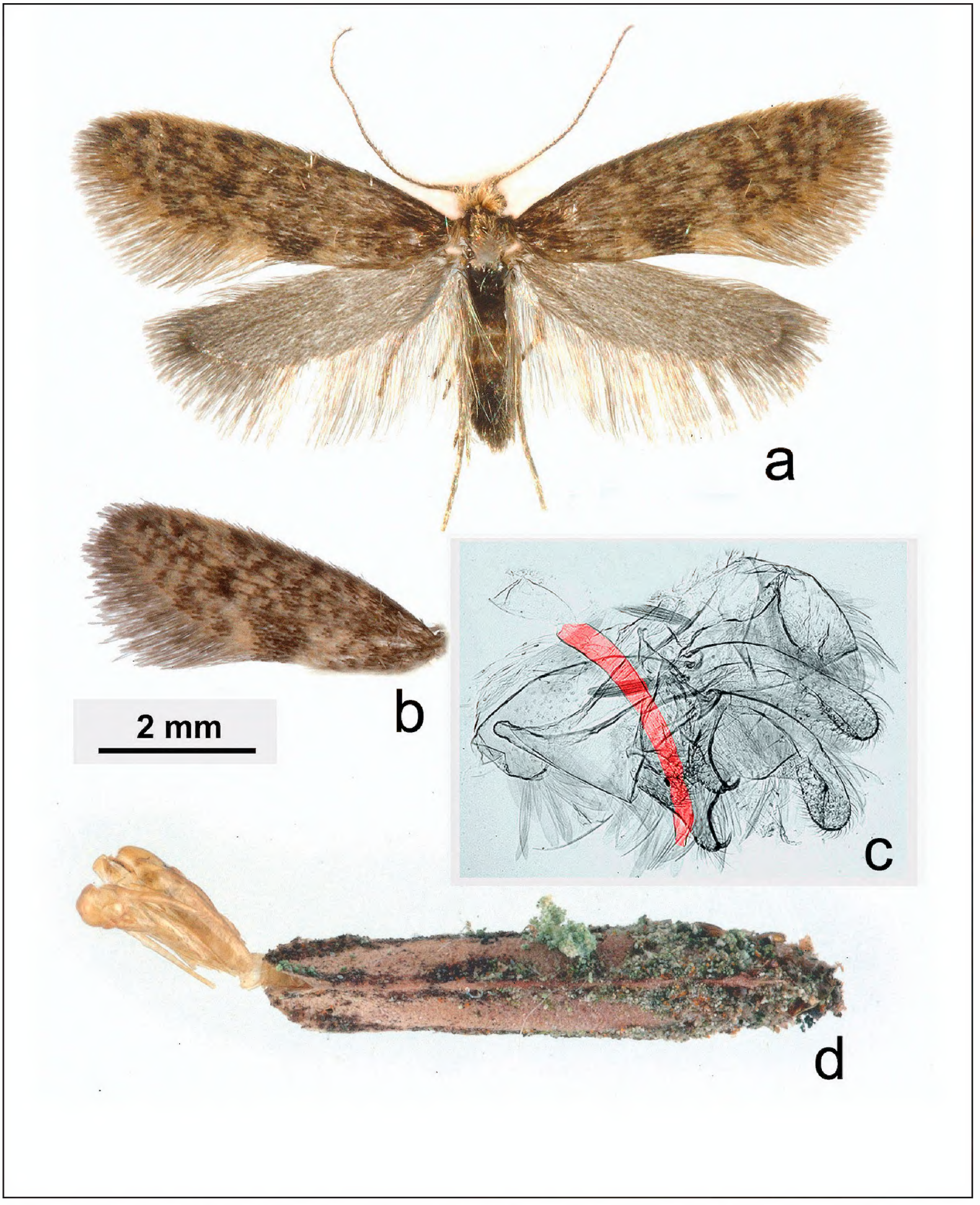

Figure 1. *Taleporia henderickxi* sp. n. **a** – holotype ♂; **b** – forewing of paratype; **c** – male genitalia; **d** – male case with exuvia.

are distinctly different. The fringe scales of the new species are long stalked, narrow, distally with 4–6 dentations. The fringe scales of *T. defoliella* are narrower and show mostly only 1–3 dentations.

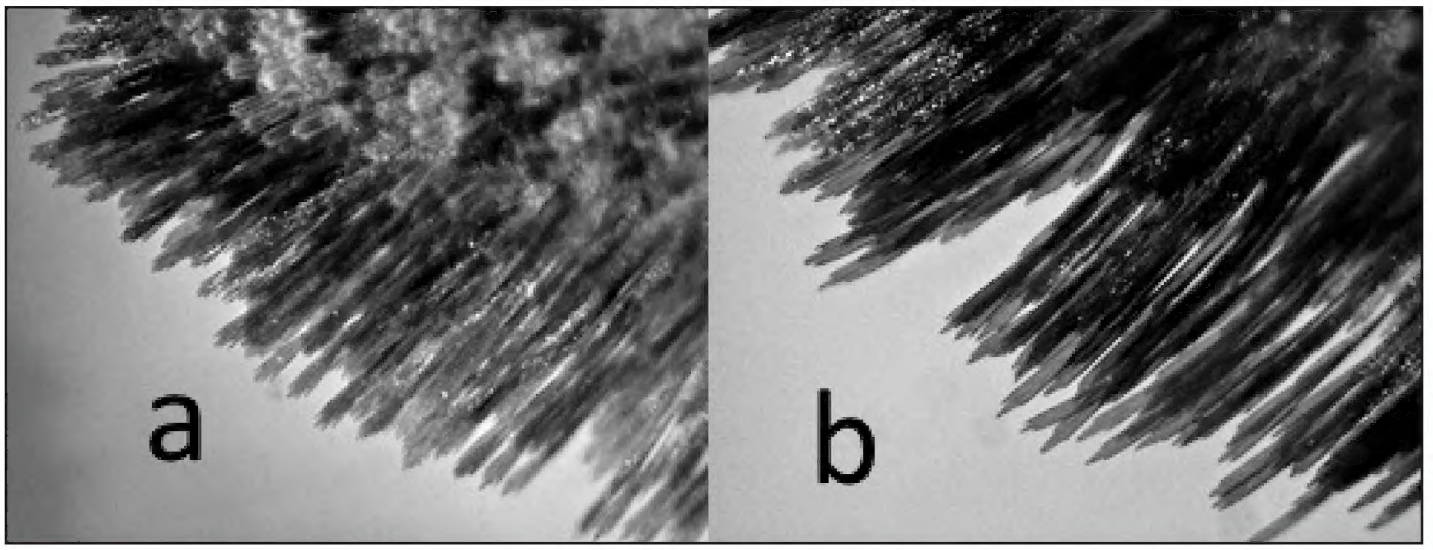

Figure 2. Fringe scales of forewing of **a** – *T. henderickxi* sp. n.; **b** – *T. defoliella.*

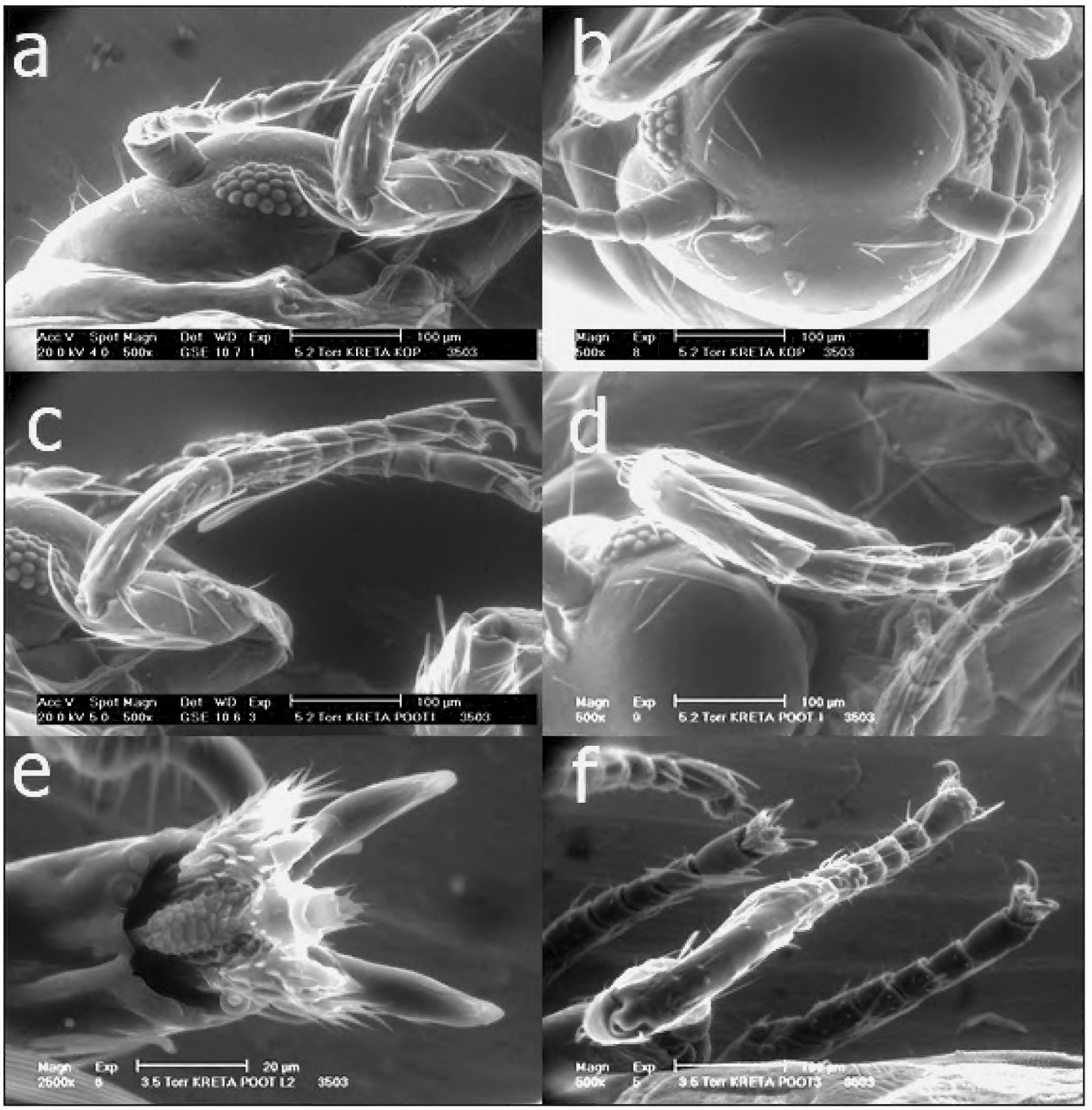

Figure 3. Electron microscope images of female characters: **a, b** – head with antenna and eyes (a – lateral view, b – dorsal view); **c, d** – foreleg; **e** – claw; **f** – tarsi with claws.

Figure 4. Female on the larval case in attracting mode.

Taleporia henderickxi differs also in the male genitalia. The setae of the distal part of the valva are more dense and slightly longer than in *T. defoliella*. The genital index (phallus length / valva length, after Sauter 1956) is distinctly higher (1.55 and 1.57, average 1.56, n=2) than in *T. defoliella* (1.17–1.20, average 1.18, n=3).

The new species differs from all other *Taleporia* species due to its small size and the extremely late period of flight. It is also characterized by its remote geographical location. No other *Taleporia* species occur on Crete and it is extremely unlikely that it is conspecific with any of the mentioned taxa. In an earlier phase of the study Peter Hättenschwiler, Uster (Switzerland) also concluded that this taxon is a separate species (P. Hättenschwiler, in litt.).

Figure 5. Hans Henderickx in the estuary of the River Megalopotamos in South Crete, the type locality of *T. henderickxi*.

Description. Male (Fig. 1). Wingspan 9 and 10 mm, forewing length 5.0 and 4.9 mm (average 4.95), dark brownish with distinct golden shine. Forewings covered with scattered small dark brown spots. A larger brown spot at the distal end of the discal cell, another one at middle of inner margin. Scales broad, with 3–4 dentations (class 6 after Sauter 1956). Fringe scales long (Fig. 2), become distinctly longer towards inner margin; long stalked, narrow, with 4–6 dentations. Hindwings uniform dark greyish with a tinge of golden gloss, scales moderately broad (class 3–4 after Sauter 1956). Venation hardly visible under magnification, with 10 veins from discal cell, accessory cell present. Head appearing hairy, with rough yellowish brown scales of variable lengths; external ocelli present. Antenna thread-like with 26–28 segments; scaled dorsally, each segment with two brush-shaped groups of setae. Forelegs with tibial epiphysis, midlegs with one pair of apical tibial spurs and hindlegs with medial and apical tibial spurs.

Genitalia typical for *Taleporia* (Fig. 1c) with tegumen indented distally, slightly vaulted, distinctly narrower distally in lateral view, with two lobe-shaped extensions. Clasper of sacculus distinctly sclerotized, upwardly curved, thorn-shaped. Valva broad, densely covered with short setae on the second half towards distal end. Vinculum short, triangular, saccus very short, broad. Phallus nearly as long as valva, thin, slightly curved in the last third caudally, vesica without cornuti. Genital index (phallus length / valva length) 1.56 (average, n=2).

Female (Figs 3, 4). Wingless. Length 3.5 mm (excluding ovipositor), yellowish white, dorsally head, thorax and each abdominal segment distinctly brownish, moderately sclerotized; ventrally less sclerotized with mostly divided brownish narrow plates. Eyes black, very small; antenna very

short, segmented. Labial palpus reduced. Legs with five tarsal segments. Anal hair-tuft darkish brown; ovipositor long, extensible.

Case. Similar in both sexes. Length 7 mm, width 1 mm, slightly triangular in cross section. Light greyish brown, sparsely covered with plant debris and sand (Figs 1d, 4).

The habitat of *T. henderickxi* is in the estuary of the River Megalopotamos in South Crete. Along this estuary there is a major cluster of the endemic palm tree *Phoenix theophrasti* (Arecaceae) (Fig. 5).

Discussion

Hättenschwiler and Scalercio (2003) transferred *T. defoliella* from *Bankesia* back to *Taleporia*. They redescribed females and males based on the morphological characters and also described the life history for the first time. The distribution of *T. defoliella* ranges from southern France throughout northern Italy, southwards to Calabria. This species is especially characterized by its flight period in September and October. Within the genus, only one other species, *T. autumnella* (Rebel, 1919), has a similar flight period, known from only two males collected by Galvagni in Istria (Croatia). Both specimens were captured in late September. This taxon has never been collected again since its discovery. In the description, Rebel compared *T. autumnella* with *T. tubulosa* (Retzius, 1783) but they differ in general appearance and by shorter cilia on the male antenna. De Freina and Witt (1985) designated the lectotype without discussing the taxonomic status. In 2011, the author had the opportunity to study the lectotype in the Witt Museum Munich. The comparison of *T. autumnella* and *T. defoliella* shows that the two taxa are very similar in all external characteristics, male genitalia and the uncommon flight period. In addition, the study of Hättenschwiler and Scalercio (2003) drew fresh light on the distribution of *T. defoliella* and *T. autumnella*. In all probability the distribution of the two taxa is rather similar because it is very likely that *T. defoliella* is distributed even in the north-eastern part of the Apennine peninsula. Thus, further studies may show that these taxa are conspecific.

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References

De Freina JJ, Witt TJ (1984) Taxonomische Veränderungen bei den Bombyces und Sphinges Europas und Nordwestafrikas. Über *Taleporia improvisella* (Staudinger, 1859) und *Taleporia pseudoimprovisella* sp. n. (Lepidoptera: Psychidae II). Entomofauna 5(13): 153–163.

De Freina JJ, Witt TJ (1985) Taxonomische Veränderungen bei den Bombyces und Sphinges Europas und Nordwestafrikas. Über Taleporiinae Tutt 1900 (Lepidoptera: Psychidae III). Entomologische Zeitschrift 95: 84–90.

Hättenschwiler P, Scalercio S (2003) Systematik, Morphologie und Verbreitung von *Taleporia defoliella* Constant, 1895 comb. rev. (Psychidae). Nota lepidopterologica 26(1/2): 19–25.

Henderickx H (1996a) A new *Luffia* from La Gomera (Canaries): *Luffia gomerensis* sp.n. (Lepidoptera: Psychidae). Phegea 24(3): 131–135.

Henderickx H (1996b) A new *Pseudobankesia* species from Navarra (Spain): *Pseudobankesia leleupiella* sp. n. (Lepidoptera, Psychidae). Bulletin et Annales de la Societe Royale Belge d'Entomologie 132: 407–413.

Henderickx H (1998) A new *Pseudobankesia* species from Crete (Lepidoptera: Psychidae). Phegea 26(1): 1–8.

Rebel H (1919) Zur Kenntnis palaearktischer Talaeporiiden. Deutsche Entomologische Zeitschrift "Iris" 33(3/4): 95–112.

Sauter W (1956) Morphologie und Systematik der schweizerischen *Solenobia*-Arten. Revue Suisse de Zoologie 63(3): 451–559. doi: 10.5962/bhl.part.75469

Sobczyk T (2002) *Luffia palmensis* sp. n., eine neue Psychide von den Kanarischen Inseln. Nota lepid. 24(4): 11–16.

Sobczyk T (2011) Psychidae. In: Nuss M (Ed.) World Catalogue of Insects. 10. Apollo books, Stenstrup, 467 pp.

Weidlich M, Henderickx H (2002) Eine neue *Pseudobankesia* aus Zypern (Lep. Psychidae). Linzer biologische Beiträge 34(1): 503–512.